

Smoking doubles risk for age-related macular degeneration

Nadja Geipert

A NEW study, the largest to date, confirms that smoking greatly increases the risk for developing age-related macular degeneration (AMD). Moreover, the risk persists for decades after an individual quits smoking.

Jennifer R Evans PhD and colleagues at the London School of Hygiene and Tropical Medicine performed a cross-sectional analysis of the association between smoking and AMD on a subgroup of the MRC Trial of Assessment and Management of Older People in the Community. That trial evaluated the health and quality of life of 33,000 British men and women ages 75 years and over.

The case-control analysis included 516 patients with severe visual impairment associated with AMD and 4364 controls with good vision- at least 6/6. All participants underwent general health assessments and visual acuity tests. The data on smoking came from a questionnaire interview in which participants gave detailed information about current and past smoking habits.

The analysis revealed that current smokers were twice as likely to suffer from AMD as non-smokers. Further highlighting smoking's devastating and long-lasting effects, the analysis also revealed that individuals who had stopped smoking 10 to 20 years earlier continued to face an increased risk compared to non-smokers. However, 20 years after smokers had quit, their risk of developing AMD decreased to that of non-smokers.

The results held up even after the researchers controlled for socioeconomic status, alcohol consumption

and heart disease, which came as no surprise to Dr Evans.

"The findings were very consistent with other studies that have used different populations and different study designs," said Dr Evans, who noted that smoking could be responsible for as many as 28,000 cases of AMD in Britain.

Study supports previous research

Several earlier studies, including the Beaver Dam Eye study, the Rotterdam Study and an Australian study (Smith W et al; Archives of Ophthalmology; Dec 1996; 114) concluded that smokers faced a significantly increased risk for developing AMD.

Dr Evans believes that the older age of the study participants was an advantage compared to other studies because AMD is common in the oldest age groups and hence the number of cases was large. The wealth of data collected at the health screen also allowed the researchers to adjust for potential confounders although lack of information on sunlight exposure and antioxidant intake meant that these factors were not controlled for.

"One advantage is that in an older population you have more eye disease. In fact by restricting age, you're making age less of a problem than if you have a population from 40 and upwards," explained Dr Evans.

However, Dr Evans admits that one limitation of the study is a lack of information on sunlight exposure and antioxidant intake. Therefore she could not control for these potentially confounding factors.

High-dose supplements of antioxidants and zinc in individuals at high-risk of

developing late-stage AMD were found to be a potent prevention strategy in the Age-Related Eye Disease Study (AREDS) funded by the US National Eye Institute, part of the National Institutes of Health in the Department of Health and Human Services. In that study, people who are at a high risk for developing advanced-stage AMD could decrease their risk by 25% by consuming increased levels of vitamin C, E, beta-carotene and zinc.

"What's so interesting about smoking studies is that they are so consistent across different studies and different populations whereas that is not the case for the other factors, which are less consistent," said Natalie Kurinij PhD, Program Director at the US National Eye Institute.

Despite the lack of information on other risk exposures in this study, the implication of a negative impact of smoking on AMD holds up, said Dr Kurinij.

"The fact that they didn't control for diet does not weaken the study, because they controlled for age, which is the strongest predictor of AMD" she said.

The study's conclusions underscore the importance of having ophthalmologists inform patients who smoke about the increased risk for developing irreversible eye diseases and encourage them to try quitting, she stressed.

"Sometimes it's just telling a patient to quit. You can't do much about your age," noted Dr Kurinij, who encouraged ophthalmologists to remind patients that smoking is a controllable and preventable risk factor.

Underlying mechanism unclear

Even though smoking has been consistently linked to an

increased risk for developing AMD, little is known about the underlying biological mechanism. One theory suggests that smoking creates more oxidative stress for the eye, according to Dr Evans. This theory fits nicely with the AREDS observation that high-dose supplements of antioxidants and zinc decrease the risk of developing late-stage AMD.

A second theory proposes that nicotine itself has a toxic effect on the retina, an idea supported by a recent animal study that demonstrated that increased nicotine increased the size and vascularity of choroidal neovascularisation in a mouse model of AMD. Further research should illuminate the precise biological process of smoking's role in the development of AMD.

In addition to the link to AMD, research has linked smoking also to various other eye diseases. One review of the current research (Wilson GA et al; N Z Med J. 2001 Oct 26;114(1142) concluded

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that several large population studies clearly established a consistent association between smoking and developing cataracts. The authors theorise that smoking induces cataract formation by causing oxidative damage and heavy metal accumulation in the lens.

Several other studies review the association to ocular diseases and also see a link between smoking and Graves' ophthalmopathy. In



Jennifer Evans

some other eye diseases, the link seems to be more indirect. For example in diabetic retinopathy, smoking worsens diabetes and can increase an individual's chance of developing related eye problems.

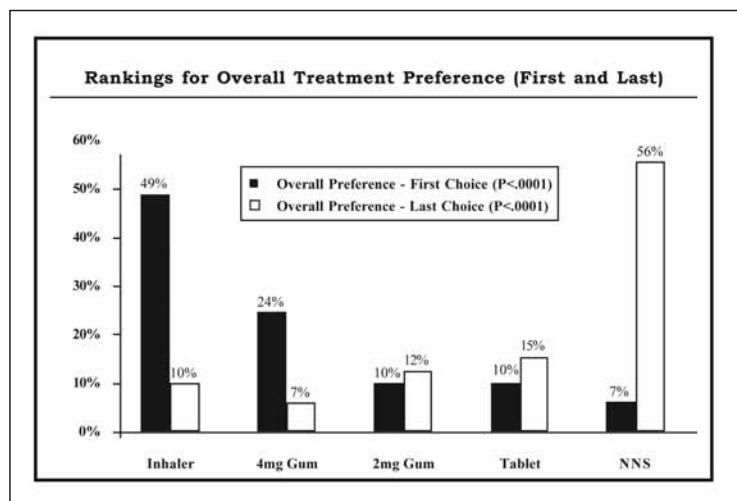
"An increased risk of [age related macular degeneration], which is the most commonly occurring cause of blindness in the United Kingdom, is yet another reason for people to stop smoking and governments to develop public health campaigns against this hazard," the researchers conclude.

The current study appeared in the British Journal of Ophthalmology (Evans et al., 2005;89:550-553).

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The best way to quit smoking- keep trying



From "Comparative Testing of 5 Nicotine Systems: Initial Use and Preferences" Schneider et al, Am J Health Behav. 2004;28(1):72-86.

WHEN encouraging a smoker to quit, physicians should remember that previous failed attempts often stop smokers from trying to quit again and remind their patients that, on average, smokers fail two to four times before they succeed in quitting.

In fact, "prior failure predicts future success," says Susan Curry PhD, professor of Health Policy and Administration and director of the Institute for Health Research and Policy at the University of Illinois at Chicago.

Only three percent of smokers succeed by quitting cold turkey, research demonstrates. Instead, with the help of a physician, smokers need to develop a strategy that addresses both the psychological and physiological aspects of their addiction. Such a treatment plan increases the chances of success more than ten times compared to quitting cold turkey.

Preparation the key

As a first step, good preparation is key and takes about one month, said Dr Curry. After setting a quitting date and making a public commitment to family and friends, smokers should see a physician to discuss

medication options.

Several approved medications are available to help smokers quit. Five are nicotine-replacement therapies (NRT) that can double quitting rates by reducing withdrawal symptoms and cravings. Some of the systems can also provide smokers with an alternative coping strategy when strong cravings occur. Options include nicotine patches, gum and lozenges as well as a nasal spray and an oral nicotine inhaler.

"The whole concept is one of weaning - that's what it's all about," said Nina Schneider PhD and Chief of the Nicotine Dependence Research Unit at the Greater Los Angeles Veterans Affairs Healthcare Systems and Research Psychologist at the School of Medicine at the University of California, Los Angeles.

Combination therapy

Many physicians recommend the patch but it is limited by being slow acting and passive. The faster-acting systems like gum or nasal spray (NNS) allow the smoker to get nicotine when needed in response to craving or withdrawal, according to Dr Schneider. Though not FDA-approved, many researchers



Sue Curry



Nina Schneider

in the field of nicotine addiction believe that one of the most effective ways to

and phone counselling all improve success rates. In a recent review of

"NRT's are excellent and necessary and most people do not use enough of them per day and do not use them long enough"

prevent withdrawal symptoms and handle urges is to use a patch in combination with gum, lozenges or inhaler, said Dr Schneider.

"NRT's are excellent and necessary and most people do not use enough of them per day and do not use them long enough" she said.

The antidepressant agent bupropion (Wellbutrin or Zyban) has FDA approval as an aid to smoking cessation. However, despite all the pharmacological aids available, quitting success rates are still below 30 percent and several other non-nicotine medications such as Rimonabant and Varenicline are currently being investigated in clinical trials.

Counselling helps

But addressing the physical aspects of nicotine addiction is probably not enough. Research supports that both individual and group therapy

pharmacological treatments for nicotine addiction, the authors recommended utilising these resources more to increase success rates. Counselling could also assist physicians in getting patients to stay on their medications longer, a major problem in the treatment of nicotine addiction.

Smokers need to be encouraged and supported in their effort. Physicians should acknowledge that quitting smoking is one of the biggest challenges smokers will ever have to face and urge them to keep trying despite past failed attempts.

"Just because something did not work the last time does not mean it will not work this time," said Dr Curry.

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